

Exploratory Factor and Reliability Analysis of Entrepreneurial Mindset Instrument Analisis Faktor Eksploratori dan Kebolehpercayaan Instrumen Pemikiran Keusahawanan

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ABSTRACT

Entrepreneurial Mindset (EM) helps undergraduate students in public universities in Malaysia to identify problems or opportunities and to find creative solutions in order to improve the situation in their personal life after graduation. Nevertheless, there is insufficient knowledge of the EM dimensions among undergraduate students at public universities in Malaysia. Therefore, this research examines the reliability and validity of the EM measurement scale among undergraduate students in Malaysian public universities. A self-administered survey questionnaire was used. The sample comprises 145 selected respondents, regularly randomized from undergraduate students at public universities in Malaysia. To measure the EM dimension, the items developed include the components of students' prior knowledge, self-efficacy, family background, and environment, comprising 41 items. Data were assessed employing exploratory factor analysis (EFA) via Statistical Package for the Social Sciences (SPSS) software. EM explains more than 60% of the variance in the relationship between items. The alpha value obtained from Cronbach is .90 over .60, which shows high reliability. All of the items in question examine the ending sustained due to the loading factor above .60 (students' prior knowledge: 12 items; self-efficacy: 6 items; family background: 9 items; and environment: 12 items). Four-factor components of entrepreneurship mindset constructs are already confirmed. Due to the study, which confirms the main construct on the importance of an EM, well-known graduates certainly benefit as the group's major target need. This study can help raise awareness and the importance of EM among students at public universities in the implemented program.

Keywords: Entrepreneurial mindset, Students' prior knowledge, Self-efficacy, Family background, Environment

INTRODUCTION

Mindset is a thought that involves attitudes, mental tendencies or beliefs that can determine a person's response to a situation and interpretation of the situation (Karri & Goel, 2008; Trinh et al., 2017). Mindsets can be fixed or growth-oriented (Dweck, 2007). While this mindset assumes that talents and skills are fixed, the growth mindset believes that talents and skills can be developed. Similarly, Dweck (2007) confidently states that mindsets can change. Most happen through developing greater awareness of current thought patterns and taking steps to think and react in new ways. From an academic point of view, the mindset concept comes from the field of cognitive psychology and organizational theory.

EM indicates a way of thinking and acting with regard to the business and its opportunities that take benefit of the uncertainty advantages (Dhliwayo & Vuuren, 2007). EM is a process of recognizing opportunities in the market, new customers or products, new businesses, or new paths for social entrepreneurship (Mai et al., 2018). Therefore, EM can be defined as a form of thinking to produce action in

the direction of creating business opportunities by considering market, customer and product factors.

The need for an EM can help change the number of unemployed graduates, which is steadily expanding annually. Based on statistics from the Department of Statistics Malaysia (DoSM), the number of unemployed graduates in 2018 was 162.0 thousand people, an increase of 4.6 percent from 2017 (154.9 thousand people) (Mahidin, 2019). The latest statistics of unemployed graduates in this country are 41,467 based on official data from the Graduate Tracking System (GTS) released by the Ministry of Higher Education in Malaysia (MoHEM). According to MoHEM, that number is only 14.5 percent of the 286,299 citizen graduates who completed their studies and answered the survey in 2021 (BERNAMA, 2023). The issue of unemployed graduates is not new. However, it is a problem for the country, resulting in graduates' skills and knowledge not being used to contribute to the country's development (Osman, 2007).

In a study of social sciences and humanities conducted by Razak and Sultan (2007), the authors highlighted that many graduates in this field are unemployed since most graduates possess communication, interpersonal, non-

proactive and unrealistic problems (Rosli, 2013). Furthermore, as per other research conducted in 2009 by the National Institute of Higher Education Research (NIOHER), the main cause of graduate unemployment was found to be due to the lack of skills they acquired during their studies, in addition to a theoretical understanding alone. Furthermore, this occurs due to students' scarce knowledge of one of the seven elements of general skills, known as entrepreneurship skills.

The Malaysian Employers Federation (MEF) admits that a degree is not a guarantee to place oneself in the world of work. Instead, various other factors and criteria have a lot of influence, especially the aspects of flexibility and good communication ability are also given important attention. The fact that it must be recognized, having a degree is not a license to get a job. Instead, it is only a basis for building a career. A job opportunity can be filled if they meet the employer's request. "If asked whether a degree or skill is preferred?" In fact, in the current new economic situation, employers choose more flexible ones that can adapt to the company's business.

However, recent graduates do not miss out on the learning process related to entrepreneurship because the government has made entrepreneurship education a major subject to be studied and mastered by students at university. It intends to impart knowledge, awareness, as well as entrepreneurial skills (Rahim et al., 2015). Therefore, it will be able to promote an entrepreneurial culture among graduates and alter students' mindsets to work alone instead of collaborating with others (Ali & Buang, 2018).

LITERATURE REVIEW

1. Entrepreneurial Mindset (EM)

Entrepreneurial mindset (EM) shows a way of thinking and acting regarding the business and its opportunities that benefit from the advantages of uncertainty (Dhliwayo & Vuuren, 2007). EM is a process of recognizing opportunities in the market, new customers or products, new businesses, or new paths for social entrepreneurship (Mai et al., 2018). Therefore, EM can be defined as a form of thinking to produce action in the direction of creating business opportunities by considering market, customer and product factors.

2. Prior Knowledge of Students

Prior knowledge refers to knowledge regularly acquired directly or not directly and remembered in student-related entrepreneurship. Prior knowledge is considered one of the important aspects in influencing student performance, providing students with a framework for

the process of assimilation of new information (Nawawi, 2005). Prior knowledge will help students understand a new concept (Ee, 2003). The deep process of the brain, which connects the available knowledge, is examined by something new, like a transfer (Cheeseman & Walker, 2019). Also, Cheeseman and Walker emphasizes that the strength of this process depends on two factors: the effect of lessons above what is learned today and the level of new things studied that will be useful in the future when new information is incorporated into memory processes. He emphasizes that when something is introduced to the brain, it will seek experience to create relevance. When relevancy is perfect, great achievement happens. This is considered a positive transfer of knowledge or experience that usually impairs a student's willingness to learn (Ee, 2003).

3. Self-Efficacy

Efficacy can be defined as a person who believes in their own capability to perform a specific task or work successfully and encourages that person to remain motivated, think positively, and always have good behavior (Bandura, 1986). Self-efficacy is self-confidence in their abilities and skills in performing career behaviors. The study by Makki et al. (2016) discovered that self-efficacy possesses a positive influence on career exploration activities because graduates have a high level of self-confidence and have the desire to find a job after graduation. Furthermore, previous studies have shown that business education focusing on entrepreneurial skills can improve graduates' self-efficacy levels (Cui et al., 2021; Nagarathanam, 2015).

Efficacy, as one of the elements of personality traits, is defined as having a strong belief in one's abilities and then evoking the motivation and behavior to act in order to achieve specific aspirations and goals (Locke, 2012). Entrepreneurial self-efficacy pertains to an individual's strength and belief concerning their ability or inability to participate in entrepreneurial activities. Self-efficacy and environmental factors are linked. Individuals who are supported by family and friends have higher self-efficacy (Ayodele, 2013). Self-efficacy was also examined along with the internal location of control variables (Hermawan et al., 2016). The research findings prove that entrepreneurship education must include aspects of self-efficacy and internal locus of control in students to foster a high interest in entrepreneurship.

4. Family Background

Successful entrepreneurs come from entrepreneurial families (Ali Amaran & Hamzah, 2021). Those who inherit family businesses are usually better-trained and more experienced entrepreneurs and can manage their businesses more successfully. Parents who become entrepreneurs admit that they have no difficulty guiding their children toward entrepreneurship because they have sufficient knowledge, experience and capital. For example, Buang (2002) asserts that entrepreneurial attitudes and interest in entrepreneurship are influenced by existing internal values. One cannot become a successful entrepreneur without the inner qualities or qualities of an entrepreneur. These traits or qualities can be inherited or developed naturally.

The choice to become an entrepreneur is usually influenced by the parents' business background (Hisrich et al., 2016). There is a significant relationship between family background and the decision to become an entrepreneur because the family plays a vital role in facilitating someone to become an entrepreneur, especially parents who encourage their children to try more challenging careers that require independence and autonomy enable (Buang & Yasin, 2008; Hisrich et al., 2016; Yoon et al., 2015). Children whose parents own businesses tend to be more confident and become entrepreneurs. According to Pihie and Elias (1997), those who own businesses have parents who tend to start their businesses.

Students with an entrepreneurial family background tend to engage in entrepreneurship stronger than students with the opposite family background (Dahalan et al., 2018). On the other hand, apart from family members, friends also play an important role in providing moral support and advice. This can be seen to influence the tendency of students to make decisions to enter entrepreneurship (Idris et al., 2009).

ENVIRONMENT

The environment is also a factor that can influence the EM of students. It can be categorized into a family environment and university. Therefore, this factor is very close to university students, enabling them to bring and maintain an EM until they graduate and face the real world of work. From a macro point of view, entrepreneurial thinking can be divided into three areas: environmental thinking, finance and capital aspects, and the aspect of repression. The consideration of the environmental aspect emphasizes the importance of environmental factors for entrepreneurship (Van De Ven, 1993). These factors can promote or hinder

the development of entrepreneurship. These environmental factors include the influence of supporting institutions, culture, and certain individuals, as well as other environmental factors that can affect an entrepreneur's success. The campus environment is an external factor influencing the growing interest with regard to entrepreneurship. Students' EM may be enhanced by interaction with other students and faculty and by giving the necessary infrastructure for entrepreneurial activities.

Social-cognitive theory grasps that human behavior is a response to personal, behavioral and environmental factors (Bandura, 1986). Factors influencing high entrepreneurial propensity among university students are attributed to psychological and environmental factors (Ismail et al., 2021; Okoye, 2016; Peng et al., 2012). In addition, there exists a robust relationship between the learning environment and student learning outcomes, either in terms of student achievement or student success (Ahmad et al., 2017; Munir et al., 2021). Here, a student's environment can shape student attitudes (Crow & Crow, 1983).

The campus setting serves as a moderator variable in this research with the potential to augment or lessen the influence of entrepreneurship education on entrepreneurial attitude. The influence of entrepreneurship education on the EM will be strengthened by an adequate campus environment. When accompanied by a conducive campus environment, the entrepreneurship education delivered will promote an EM. On the other side, the impact of entrepreneurship education on the EM will be diminished if the campus environment is unfavorable.

METHOD

This study uses an instrument developed to determine reliable measures of the EM construct among students at Universiti Kebangsaan Malaysia (UKM). First, quantitative data were collected via a self-administered questionnaire. In this study, the self-administered questionnaire method is used. It is defined as a method where the respondents themselves will read and answer the questions in the questionnaire without the presence of the researcher (Hair et al., 2018). This study chose to use the self-administered questionnaire method because (1) the population in this study involves a large sample of respondents; therefore, there is cost savings and time savings compared to face-to-face or telephone interview methods (Churchill, 1979; Hair et al., 2018; Sekaran & Bougie, 2016; Zikmund et al., 2016); (2) the questionnaire can be completed by the respondent at any time; (3) can be applied to wide sample geography at low cost, because it does not need to involve the presence of the researcher (Zikmund et al., 2016); (4) respondents can comfortably provide information based on their

opinions and feelings, and information based on respondents' attitudes, beliefs and motives (O'Shaughnessy & Krogman, 2012); and (5) providing accurate information about the study sample to enable the researcher to generalize or conclude the study results to the population represented by the sample (Chisnall, 1993).

This research also included an in-depth literature review in determining the items employed in measuring the EM construct. A total of 145 undergraduate students from various disciplines at UKM (52 male and 93 female students) were randomly selected prior to the questionnaire distribution. The range of age is between 18 to 24 years old. A sample size of 145 people is suitable for conducting exploratory factor analysis (EFA) (Hair et al., 2014). This study uses existing instruments that have been adapted and modified from the studies of previous researchers. This selection is appropriate because the minimum number of respondents for the study is between five and ten people (Johnson & Christensen, 2014). The data were then analyzed employing EFA in IBM-SPSS software version 22.0.

INSTRUMENTS

Researchers already build question-structured surveys with as many as 41 items, which are measured utilizing a scale 7-point interval between 1, "strongly disagree," to 7, "strongly agree". The question item investigates the EM construct consisting of four sub-constructs related to Prior Knowledge (12 items), Self-Efficacy (9 items), Family Background (6 items) and Environment (14 items) were developed by adapting questions from previous researchers. To develop question items for the EM construct and items that measure the EM construct, namely Prior Knowledge, Self-Efficacy, Family Background and Environment, instruments from previous researchers (Do, 2020; Hamzah et al., 2009; Li et al., 2016; Manaf, 2004).

CONTENT EXPERT VALIDITY

Instrument research was adapted from previous researchers (Do, 2020; Hamzah et al., 2009; Li et al., 2016; Manaf, 2004). Therefore, pilot tests were implemented to confirm changed instrument studies to make them suitable for research. This is because the instrument may originally have already been developed for use in a population, culture or various industries (Ehido et al., 2020; Hoque et al., 2018; Rahlin et al., 2019). Next, the instrument research will be evaluated by five experts to verify the validity content and

ensure the items in the instrument measurement research are carried out. In addition, the experts review the validity criteria to validate the suitability scale used in measuring the data in the analysis statistics. Experts also provide understandable, relevant answers to some questions that can be abbreviated and to some already rearranged questions to avoid duplicate questions. The question has already been researched, checked, and tested again by five members of academic university research. Prior to evaluating the consistency of their responses, these scholars were also requested to check the questionnaire for relevance and clarity.

EXPLORATORY FACTOR ANALYSIS (EFA)

EFA serves an important role in this research to investigate the relationship between the items of the four EM sub-constructs utilized in compressing a group of items into a set of smaller combined factors with minimal loss of information. Similarly, it is to interpret them more meaningfully and easily (Chik & Abdullah, 2018; Dunteman, 1989; Field, 2006; Lewis-Beck, 1994). This lays the foundation for structural equation modeling (Hair et al., 2006). The items employed in this research were accommodated from instruments established by several prior investigations, as well as some statements modified to be consistent with current research.

Researchers adopting instruments from previous studies and adapting statements to existing studies must perform the EFA process (Awang, 2012; Hoque et al., 2018). This is since the existing field of research might differ from prior research, or the existing study population may differ greatly from prior research in regard to socioeconomic status, race, as well as culture. As such, there might be certain formerly constructed items that are no longer suitable for current research. Therefore, researchers need to recalculate the internal reliability value for the current instrument using Cronbach's alpha value (Awang et al., 2018; Hoque et al., 2018). In this research, Kaiser-Meyer-Olkin (KMO) and Bartlett's Spherical Tests were performed to determine the adequacy of the proposed sample ratio to reduce the variable case ratio for the analysis.

Bartlett's Spherical Test is significant at $p < 0.05$ for factor analysis to be adequate (Hair et al., 2018). KMO varies from 0 to 1, but the generally acceptable index is greater than 0.60 (Awang et al., 2018; Hoque et al., 2018). The amount of explained variance was also investigated as an item extraction process in order to minimize it to a manageable number prior to additional analysis. Moreover,

items with an eigenvalue greater than 1.0 are extracted into different components (Awang, 2012; Pallant, 2020). In addition, the rotating component matrix was examined, and only items with loading factors above 0.60 were retained for additional analysis (Awang, 2012). However, in the EFA process, a reliability analysis for measurement items was performed in which those items having Cronbach's alpha value of greater than 0.70 or higher were taken into consideration. Moreover, Hair et al. (1998) and Awang (2012) proposed that the value of Cronbach's alpha of 0.60 and above represents a reliable measure of internal consistency. Meanwhile, a value of 0.70 and above shows that the instrument has a high standard of reliability (Awang et al., 2018; Ehido et al., 2020; Hoque et al., 2018).

RESULTS AND DISCUSSION

EXPLORATORY FACTOR ANALYSIS FOR ENTREPRENEURIAL MINDSET CONSTRUCTION

In order to identify the basic dimensions and items of the construct EM and to verify the instrument quality, data from 145 respondents were collected in this study. As a result, four sub-constructs with 41 new items were developed for the EM construct in this research. Of the 41 items (coded as Q1 through Q41), 12 items are prior knowledge, 9 items are self-efficacy, 6 items are family background, and 14 items are environment. Descriptive statistics for every item are presented in Table 1. The range of means for each item is 2.75 to 5.89, while the standard deviation is 1.09 to 2.21.

Table 1. Descriptive Statistics of Items that Measure the Entrepreneurial Mindset Construct

Item	Statement	Mean	Std. Deviation
Prior knowledge			
Q1	I had a revelation related to entrepreneurship before entering university.	4.68	1.45
Q2	I can solve complex problems.	4.63	1.24
Q3	I am trying to express if it is technically feasible to develop a new product or service.	4.45	1.18
Q4	Entrepreneurship requires capital.	5.78	1.29
Q5	Business planning is a guideline for running a business.	5.85	1.19
Q6	Business planning (business plan) is related to submitting a business idea.	5.69	1.15
Q7	Entrepreneurship requires an effective marketing strategy.	5.97	1.17
Q8	Entrepreneurship requires information seeking.	5.79	1.15
Q9	Entrepreneurship requires an understanding of finance.	5.89	1.09
Q10	Business planning (business plan) is useful to help with business capital loans.	5.65	1.12
Q11	Entrepreneurship is closely related to business planning.	5.51	1.16
Q12	Entrepreneurship requires constant practice.	5.72	1.19
Self- efficacy			
Q13	I am always actively looking for as much information as I can in new situations.	5.07	1.36
Q14	I consider myself a person who acts when I'm curious about something.	5.19	1.16
Q15	I have at least one area of interest in my life.	5.68	1.28
Q16	I learn from failure.	5.68	1.22
Q17	I believe the ability to face failure can be improved through practice.	5.76	1.16
Q18	I would like to take some entrepreneurship courses at the university.	4.55	1.40
Q19	I have a clear plan for my professional development.	4.74	1.21
Q20	My career goal is to become an entrepreneur with an entrepreneurial mindset.	4.41	1.46
Q21	I agree that creative thinking skills can be acquired through practice.	5.45	1.15
Family background			
Q22	Among my family members, there are those who run entrepreneurial/ business activities.	4.87	2.00
Q23	I come from a family that runs a business.	3.79	2.06

Item	Statement	Mean	Std. Deviation
Q24	I inherited my family business.	2.75	1.88
Q25	I used to help my parents with business.	3.63	2.21
Q26	I was exposed to business since I was a child.	3.16	1.97
Q27	The experience of helping the family run a business made me more interested in entering the business field.	3.28	1.95
Environment			
Q28	I can act effectively and creatively in difficult situations.	4.85	1.21
Q29	I use the approach that I think is suitable to deal with the situation.	5.07	1.18
Q30	I was assigned to do a case study related to entrepreneurship.	4.29	1.55
Q31	I am involved in an entrepreneurship program involving external companies organized by my university.	3.66	1.87
Q32	I have participated in social entrepreneurship programs and activities at my university.	4.29	1.81
Q33	I used to collaborate with external companies in doing business through a program organized by the university.	3.41	1.92
Q34	My university provides consulting services to students who want to open a small and non-profit businesses.	4.66	1.61
Q35	My university helps students who want to start their own businesses.	5.35	1.42
Q36	My university provides the subject of entrepreneurship as one of the subjects that students must take.	5.70	1.46
Q37	My university gave me enough entrepreneurial knowledge.	5.19	1.31
Q38	Studying at university encouraged me to develop innovative ideas for start-ups.	5.13	1.31
Q39	My university developed my skills and ability to start.	5.09	1.34
Q40	The university curriculum that provides the subject of entrepreneurship gives me the knowledge to be more confident in opening a business.	4.96	1.28
Q41	My university organizes entrepreneurial orientation activities (seminars, start-up idea competitions, etc.).	5.29	1.36

The process of EFA is based on the sub-constructs of the EMS, namely prior knowledge, self-efficacy, family background and environment, which are analyzed separately. The diagrams in Figures 1, 2, 3 and 4 show that

the four sub-constructs in this construct originated from EFA. Employing EFA, 41 items were grouped into four distinct components. Accordingly, the rotated component matrix shows the elements grouped under each component.

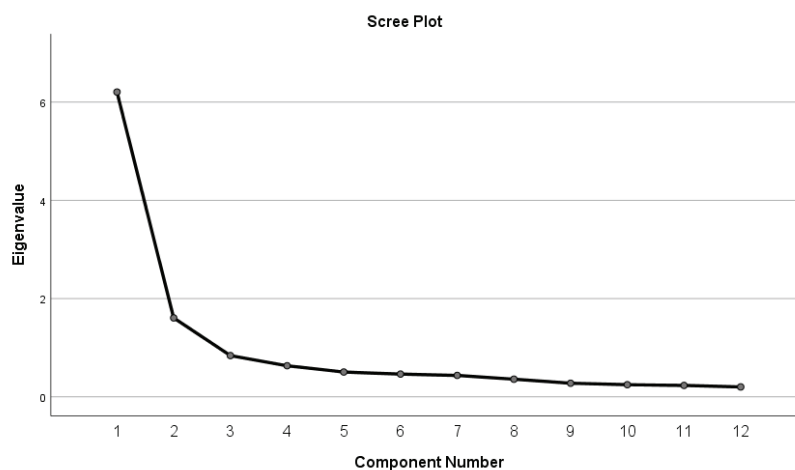


Figure 1. The Scree Plot for Prior Knowledge

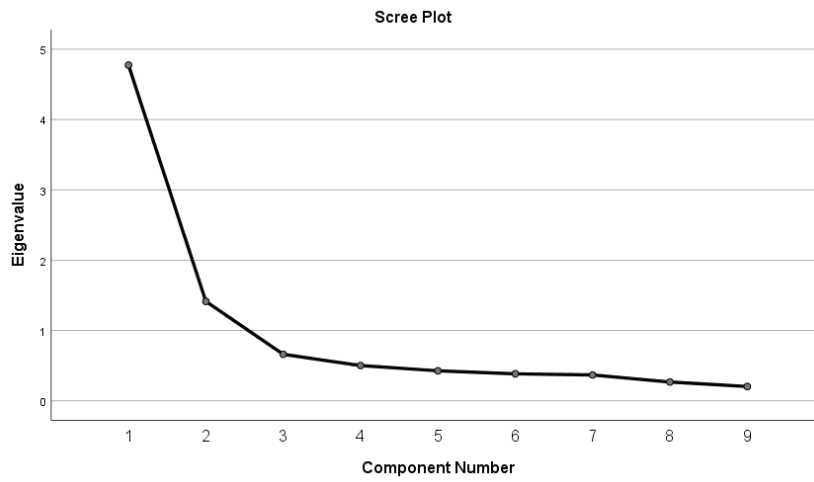


Figure 2. The Scree Plot for Self-Efficacy

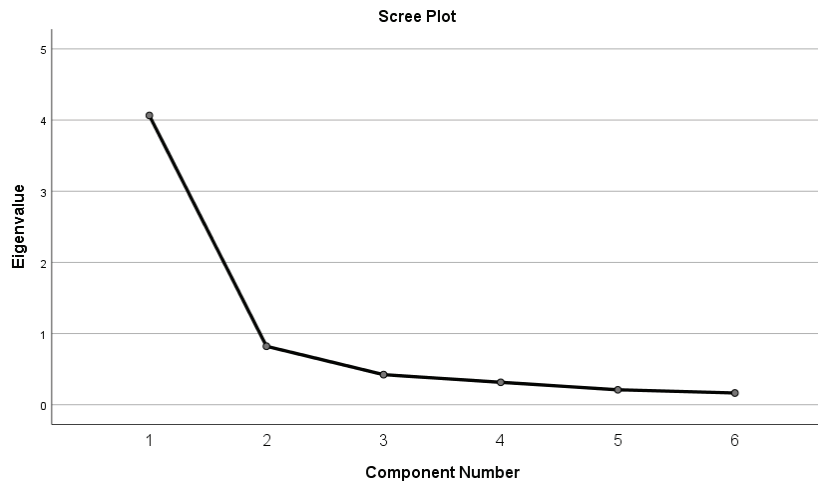


Figure 3. The Scree Plot for Family Background

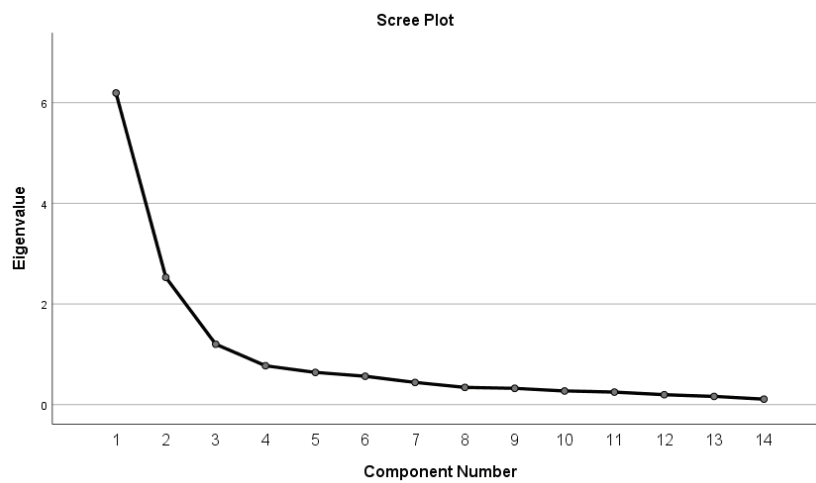


Figure 4. The Scree Plot for the Environment

Principal component analysis (PCA) with varimax rotation is employed on 41 items in the EFA procedure. The findings in Table 2 demonstrate that Bartlett’s test of sphericity (p-value < .05) was significant.

Table 2. Significance of Bartlett’s Test of Sphericity

KMO and Bartlett’s Test (Prior knowledge)	
KMO Measures of Sampling Adequacy.	0.905
Bartlett’s test of sphericity (Approx. Chi-Square)	1029.781
df	66
Sig.	0.000
KMO and Bartlett’s Test (Self-Efficacy)	
KMO Measures of Sampling Adequacy.	0.858
Bartlett’s test of sphericity (Approx. Chi-Square)	689.072
df	36
Sig.	0.000
KMO and Bartlett’s Test (Family Background)	
KMO Measures of Sampling Adequacy.	0.848
Bartlett’s test of sphericity (Approx. Chi-Square)	588.668
df	15
Sig.	0.000
KMO and Bartlett’s Test (Environment)	
KMO Measures of Sampling Adequacy.	0.851
Bartlett’s test of sphericity (Approx. Chi-Square)	1342.898
df	91
Sig.	0.000

In addition, the KMO measure of sampling adequacy result is 0.905, 0.858, 0.848 and 0.851, which are sufficient as they exceed the minimum value of 0.60 (Awang, 2012; Bahkia et al., 2019; Rahlin et al., 2019). Therefore, both results indicate that the data are sufficient to continue the data reduction method (Awang et al., 2015; Hoque et al., 2018; Shkeer & Awang, 2019).

COMPONENTS AND TOTAL VARIANCE

Table 3 depicts the four EFA components based on eigenvalues exceeding 1.0. Moreover, the explained variance for prior knowledge (65.098), self-efficacy (68.757), family background (67.748%), and environment (70.878%) exceeds the minimum requirement of 60% (Noor et al., 2015; Yahaya et al., 2018).

Table 3. Four EFA Components Based on Eigen Values That Exceed 1.0

Initial eigenvalues extraction sums of squared loadings						
Prior Knowledge						
Components	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	6.205	51,709	51,709	6.205	51,709	51,709
2	1.607	13,388	65,098	1.607	13,388	65,098
Self-efficacy						
Components	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	4,774	53,048	53,048	4,774	53,048	53,048
2	1.414	15,709	68,757	1.414	15,709	68,757
Family Background						
Components	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	4,065	67,748	67,748	4,065	67,748	67,748
2	0.822	13,693	81.441			

continue. ...

... cont.

Components	Environment					
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	6.193	44.238	44.238	6.193	44.238	44.238
2	2.528	18,060	62,299	2.528	18,060	62,299
3	1.201	8,580	70,878	1.201	8,580	70,878

The four components are presented with the corresponding items in Table 4 for this investigation. Every item's factor loading is larger than .50, as shown in the table. Therefore, 41 elements were thus chosen to evaluate the EM construct. If the factor loading value is less than .60,

then the item should be removed from being used in the study. The table below will explain in detail the load factor analysis for each item. The table below also displays the overall factor loading value for each component in the EM construct.

Table 4. Factor Loading for Each Item

		Components		
		1	2	3
PK1	I had exposure related to entrepreneurship before entering university.		0.708	
PK2	I am able to solve complex problems.		0.832	
PK3	I am able to state if it is regularly technical and can be implemented for developing products or new services.		0.876	
PK4	Entrepreneurship needs capital.	0.691		
PK5	Planning a business is a guideline for running a business.	0.776		
PK6	Planning a business (business plan) is related to submitting a business idea.	0.758		
PK7	Entrepreneurship requires an effective marketing strategy.	0.882		
PK8	Entrepreneurship needs to search for information.	0.861		
PK9	Entrepreneurship needs an understanding of finances.	0.826		
PK19	Planning a business (business plan) is useful for helping with business capital loans.	0.720		
PK11	Entrepreneurship related close to planning business.	0.727		
PK12	Entrepreneurship needs continuous training.	0.710		
SE1	I always actively look for as much information as I can in new situations.	0.624		
SE2	I think of myself as a person who takes action when I want to know about something.	0.781		
SE3	I have at least one of my fields that I am interested in.	0.772		
SE4	I study from failure.	0.816		
SE5	I believe the ability to face failure can be fixed through exercise.	0.863		
SE6	I would like to take some courses in entrepreneurship at the university.		0.854	
SE7	I have a clear plan for professional development.		0.694	
SE8	My career goal is to be a personal entrepreneur through entrepreneurship thoughts.		0.897	
SE9	I agree skills in creative thinking can be obtained through exercises.	0.726		
FBG1	Of my family member, some run entrepreneurship/business activities.	0.608		
FBG2	I am from a family that runs a business.	0.877		
FBG3	I inherited a family business.	0.798		
FBG4	I used to help my mother and father with the business.	0.859		
FBG5	I have been exposed to business since small.	0.848		
FBG6	Experience when helping my family run businesses makes me more interested in venturing into the business area.	0.912		

continue. ...

		Components		
		1	2	3
ERM1	I got it to act effectively and creatively in difficult situations.			0.885
ERM2	I used the way I thought was suitable for dealing with situations.			0.900
ERM3	I was given the assignment to make a research case related to entrepreneurship.		0.678	
ERM4	I am involved in an entrepreneurship program that involves a company outside organized by my university.		0.875	
ERM5	I used to join a program or entrepreneurship social activity at the university.		0.769	
ERM6	I used to cooperate with companies outside in running businesses through programs organized by the university.		0.863	
ERM7	My university provides service consultation to students who want to open a non-profit and small business.			
ERM8	My university helps students who want to start a business on their own.	0.808		
ERM9	My university provides entrepreneurship subject as one of the compulsory subjects taken by students.	0.810		
ERM10	My university gives me sufficient entrepreneurship knowledge.	0.864		
ERM11	Studying at my university encouraged me to develop innovative ideas in the beginning.	0.857		
ERM12	My university develops skills and abilities for me to start.	0.773		
ERM13	University provides a curriculum with entrepreneurship subjects and gives me knowledge for more confidence for opening a business.	0.824		
ERM14	My university organizes entrepreneurship orientation activities (seminars, start-up idea competitions, etc.).	0.813		

INTERNAL RELIABILITY FOR THE MEASUREMENT OF EM CONSTRUCT INSTRUMENTS

construct to evaluate the consistency of findings across items for similar constructs. A Cronbach's alpha value that surpasses 0.70 implies greater internal reliability (Wagner III, 2019).

Cronbach's alpha values were assessed to identify the internal reliability of every component measuring the EM

Table 5. Reliability Analysis for the Components Used to Measure the Entrepreneurial Mindset Construct (4 sub-construct)

No.	Name of components	Number of items	Cronbach's alpha
1	Prior Knowledge	12	0.907
2	Self-Efficacy	9	0.884
3	Family Background	6	0.901
4	Environment	14	0.887

As the findings in Table 5 demonstrate, Cronbach's alpha value for the four components employed in measuring the EM ranged from .884 to .907. These values are greater than .70, indicating acceptable internal reliability.

DISCUSSION

This study aims to assess four groups of EM among students at public universities in Malaysia employing the EFA

method. Given the increased choice and freedom, a 7-point interval scale is employed since it provides the measurement model with more precision in comparison to a 5-point scale. Depending on the EFA outcomes, the four components that measure the construct EM explain 60.0% of the variance in the relationships between items. In addition, four components also have greater reliability (Cronbach's alpha from .884 to .907). Finally, in this study, four components have been constructed to measure the construct (EM). Furthermore, this study also found that the sample size of

145 undergraduate students in Malaysian public universities is adequate for EFA (Bahkia et al., 2019; Hair et al., 2010; Rahlin et al., 2019; Shkeer & Awang, 2019). The factor analysis has proved that the EM instrument in this study

makes a valuable tool for measuring the targeted construct accurately and providing meaningful insights for research and decision-making purposes.

Table 6. Summary of EFA Model Indexes

No.	Exploratory Factor Analysis (EFA) Model Indexes Bartlett's	Recommended Value*	Results
1	Bartlett's test of sphericity/(sig. <0.05)	<0.05	Successfully Achieved
2	Kaiser-Meyer-Olkin (KMO) of Sampling Adequacy	> 0.50	Successfully Achieved
3	The value of factor loading for each item	≥ 0.40	Successfully Achieved
4	The measure of communalities	≥ 0.30	Successfully Achieved
5	The eigenvalue	≥ 1.00	Successfully Achieved
6	% contribution of variance on factors	≥ 3.00	Successfully Achieved
7	Cronbach alpha	> 0.70	Successfully Achieved

*Hair et al. (2018)

Based on Table 6, the analysis shows that all the values proposed by Hair (2018) were successfully achieved. According to the EFA results, this study's four-dimensional performance was moderate. Particularly, during the first instrument development phase, feedback from five experts was thoroughly analyzed to determine the validity of the instrument. However, as recommended by Yu and Richardson (2015), further research is still needed to identify the relationship between the latent variables via confirmatory factor analysis (CFA) procedures.

CONCLUSION

The EM dimensions determined in this research are the prior knowledge of the students, self-efficacy, family background and environment. Based on the EFA results, the items adapted from the literature to measure the four dimensions included a total of 41 items, which were sufficient to justify more than 60% of the total variance. Additionally, the research data are sufficient, as the KMO score is .80. In addition, the items have outstanding internal reliability to measure the construct since Cronbach's alpha value is higher than .70. Therefore, the measurements and validations performed in this research have verified the internal consistency and reliability of the new EM instrument, which can facilitate improving the EM of undergraduate students in Malaysian public universities. In addition, the instrument is reliable in measuring the construct of the EM and can be used and supported in this research.

Further research that can address this is to involve students at private universities in Malaysia to see if the EM constructing items of this study can be used at private

universities. This research uses a cross-sectional research design that involves one-time data collection over a short period of time. Hence, future scholars can perform long-term research on the determined EM to comprehend how EM will improve over time. Time and how it influences the mindset of students as they face real-life situations in the world of work. Therefore, in order to ascertain the components that influence the demand to use an EM in the programs and curricula at universities, the EM instrument is appropriate for academicians and scholars as well as human resource administrators or university management.

The first limitation the researcher has no control over throughout the data collection process is respondent bias, which can be attributed to respondents' hectic schedules or reluctance to respond to the questionnaire. Subsequently, the research focus is on undergraduate students in Malaysian public universities who are randomly selected.

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